

CLAIMS

I claim:

1. A picture, comprising:

a hard-copy medium; and

5 pigment, imprinted on the hard-copy medium so as to define an image incorporating markings that are substantially imperceptible to an unaided eye of a human viewer and that encode audio data associated with the image.

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2. The picture according to claim 1, wherein the pigment is imprinted on the hard-copy medium so as to define dots of varying sizes within respective cells, and wherein the audio data are encoded in the picture by
15 varying respective positions of the dots within the respective cells.

3. A method for encoding information, comprising:

capturing an image of a subject so as to generate
20 image data;

receiving an audio input associated with the subject so as to generate audio data; and

printing a picture of the subject responsively to the image data, while encoding the audio data using
25 markings in the printed picture that are substantially imperceptible to an unaided eye of a human viewer.

4. The method according to claim 3, wherein capturing the image comprises photographing the image using an
30 electronic imaging camera, and wherein receiving the

audio input comprises recording the audio input using a microphone coupled to the camera.

5 5. The method according to claim 3, wherein printing the picture comprises printing a halftone picture comprising dots of varying sizes within respective cells, and wherein encoding the audio data comprises varying respective positions of the dots within the cells responsively to the audio data.

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6. The method according to claim 3, and comprising detecting and decoding the markings in the printed picture, and generating an audio output responsively to the decoded markings.

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7. The method according to claim 3, wherein the audio input comprises speech, and wherein receiving the audio input comprises converting the speech to at least one of text and prosody of the speech, and wherein encoding the audio data comprises encoding the at least one of the text and the prosody.

8. A method for recovering information, comprising:
 scanning a picture comprising an image and
25 incorporating in the image markings that are substantially imperceptible to an unaided eye of a human viewer and that encode audio data associated with the image;

 detecting and decoding the markings in the scanned
30 picture; and

generating an audio output responsively to the decoded markings.

9. Apparatus for encoding information, comprising:

5 an image capture device, which is arranged to capture an image of a subject so as to generate image data;

a processor, which is coupled to receive audio data associated with the subject, and which is arranged to
10 generate a composite image of the subject comprising the image data, while encoding the audio data in the composite image using markings that are substantially imperceptible to an unaided eye of a human viewer; and

a printer, which is arranged to print a picture of
15 the subject comprising the encoded audio data responsively to the composite image.

10. The apparatus according to claim 9, wherein the image capture device comprises an electronic imaging
20 camera, which further comprises a microphone for capturing the audio data.

11. The apparatus according to claim 9, wherein the picture comprises a halftone picture comprising dots of
25 varying sizes within respective cells, and wherein the processor is arranged to vary respective positions of the dots within the cells so as to encode the audio data.

12. The apparatus according to claim 9, and comprising a
30 scanner, which is arranged to detect the markings in the

printed picture, so as to permit an audio output to be generated responsively to the markings.

13. The apparatus according to claim 9, wherein the
5 audio data comprises speech, and comprising a speech-to-text converter that converts the speech to at least one of text and prosody of the speech, and wherein encoding the audio data comprises encoding the at least one of the text and the prosody.

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14. Apparatus for recovering information, comprising:

a scanner, which is arranged to scan a picture comprising an image incorporating markings that are substantially imperceptible to an unaided eye of a human
15 viewer and that encode audio data associated with the image;

a processor, which is arranged to detect and decode the markings in the scanned picture so as to recover the audio data from the picture; and

20 an audio speaker, which is coupled to the processor so as to play the recovered audio data.

15. A computer software product, comprising a computer-readable medium in which program instructions are stored,
25 which instructions, when read by a programmable processor, cause the processor to receive image data representative of an image of a subject, and to receive audio data associated with the subject, and to generate a picture of the subject comprising the image data, while
30 encoding the audio data in the picture using markings

that are substantially imperceptible to an unaided eye of a human viewer.

16. The product according to claim 15, wherein the
5 picture comprises a halftone picture comprising dots of varying sizes within respective cells, and wherein the instructions cause the processor to vary respective positions of the dots within the cells so as to encode the audio data.

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17. The product according to claim 15, wherein the instructions further cause the processor to detect the markings in the printed picture, so as to recover the audio data from the markings.

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18. A computer software product, comprising a computer-readable medium in which program instructions are stored, which instructions, when read by a programmable processor, cause the processor to receive input data from
20 a scanned image of a picture that incorporates markings that are substantially imperceptible to an unaided eye of a human viewer and that encode audio data associated with the image, and to detect and decode the markings in the scanned image so as to recover the audio data from the
25 picture.